

Method for Simulating a Mixer in Circuit Simulators and the Like

ABSTRACT

A method for operating a data processing system to simulate a mixer having an RF port, a LO port, and an IF port. In the present invention, the signal leaving the IF port is approximated by

$$b2 = f(a1, a3) + S22 * a2$$

where S22 is a constant, a2 is a signal input to the IF port, a1 is a signal input to said RF port and a3 is a signal input to said LO port, and

$$f(a1, a3) = \sum_{i=0}^M \sum_{j=0}^N C_{ij} * a1^i * a3^j$$

The coefficients C_{ij} are constants that depend on said mixer design. These coefficients can be determined by measuring the b2 when a1 and a3 are single tone signals. In addition, The coefficients can be determined by simulating said mixer on a non-linear circuit simulator when a1 and a3 are single tone signals.